

- [c20] A client computer comprising:
- a dial-up client providing dialing services to the client computer;
 - a client-side cryptographic function providing cryptographic services located on the client computer;
 - a custom script dynamically linked library providing an interface between the dial-up client and the client-side cryptographic function; and
 - a card reader attached to the client computer for reading a security device.
- [c21] A server comprising:
- a server-side cryptographic function providing cryptographic services located on the server; and
 - a PKI-Bridge providing an interface between the server and the server-side cryptographic function.
- [c22] The server of claim 21, further comprising:
- a directory service accessed by the server-side cryptographic function.
- [c23] A server comprising:
- a server-side cryptographic function providing cryptographic services located on the server;
 - a PKI-Bridge providing an interface between the server and the server-side cryptographic function; and
 - a directory service accessed by the server-side cryptographic function.
- [c24] A method of integrating via a dial-up interface, comprising:
- sending session initiation information from a dial-up client to a PKI-Bridge;
 - checking session initiation information by the PKI-Bridge;
 - generating a challenge string by a server-side cryptographic function;
 - forwarding the challenge string to a custom script dynamically linked library;

forwarding the challenge string to a client-side cryptographic function from the custom script dynamically linked library;
retrieving a private key from a security device;
generating a response string;
signing the response string with the private key of a dial-in user;
forwarding a signed response string to the custom script dynamically linked library;
dividing the signed response string into packets;
forwarding packets to the PKI-Bridge;
reconstructing the signed response string from packets;
forwarding a reconstructed signed response string to the server-side cryptographic function;
obtaining a public key of the dial-in user; and
verifying the reconstructed signed response string using the server-side cryptographic function.

- [c25] The method of claim 24, further comprising:
reading the security device by a card reader.
- [c26] The method of claim 24, further comprising:
encoding the signed response string.
- [c27] The method of claim 24, further comprising:
decoding the signed response string.
- [c28] The method of claim 24, further comprising:
forwarding the challenge string to the dial-up client; and
forwarding the challenge string to the PKI-Bridge.

- [c29] The method of claim 24, further comprising:
forwarding packets from the custom script dynamically linked library.
- [c30] The method of claim 24, wherein the security device is a smart card.
- [c31] The method of claim 24, wherein the session initiation information comprises
version information and a distinguished name.
- [c32] The method of claim 24, wherein the public key is stored on a directory service.
- [c33] The method of claim 32, wherein the directory service is lightweight directory
access protocol compliant.
- [c34] A method of integrating via a dial-up interface, comprising:
sending session initiation information from a dial-up client to a PKI-Bridge;
checking session initiation information by the PKI-Bridge;
generating a challenge string by a server-side cryptographic function;
forwarding the challenge string to a custom script dynamically linked library;
forwarding the challenge string to a client-side cryptographic function from the
custom script dynamically linked library;
retrieving a private key from a security device;
generating a response string;
signing the response string with the private key of a dial-in user;
forwarding a signed response string to the custom script dynamically linked
library;
dividing the signed response string into packets;
forwarding packets to the PKI-Bridge;
reconstructing the signed response string from packets;
forwarding a reconstructed signed response string to the server-side cryptographic
function;